

In the Abstract

Please note that the following clean copy abstract text appeared in the specification as filed on page 1.

Equistatin, belonging to the type I repeated thyroglobulin domain, and known to be an inhibitor of cysteine proteases is found to also inhibit aspartic proteases with a different domain of the protein. The DNA encoding equistatin, an inhibitor of cysteine and aspartic proteases, is isolated from the sea anemone *Actinia equina*. The equistatin protein was found to be particularly active towards gut cysteine and aspartic proteases of a number of common insect pests of agricultural crops, such as Colorado potato beetle, corn rootworm, leafminer fly and thrips. P41 invariant chain fragment, another member of this family with only cysteine protease inhibitor activity was equally active towards the cysteine protease complement as was found for equistatin.

Recombinant equistatin protein was found to be larvicidal against Colorado potato beetle and to strongly reduce fecundity of adult thrips. DNA encoding equistatin and other proteins containing similar type I repeated thyroglobulin domains may be cloned into vectors and used to transform plants thus conferring reduced susceptibility to damage by plant pests that have thiol and/or aspartic proteases as digestive enzymes including insects and nematodes and particularly Coleopteran, Dipteran and Thysanopteran insects.